

**REMARKS/ARGUMENTS*****Status of Claims***

Claims 1-4, 6-22, and 24-49 stand rejected.

Claims 1, 16, 17, 19, 38, 39, 41, and 42 are currently amended.

Claims 15, 36, and 37 are currently canceled.

Claims 50-52 are new.

As such, claims 1-4, 6-14, 16-22, 24-35, and 38-52 are pending in the application.

The Applicants hereby request further examination and reconsideration of the presently claimed application.

***Claims Rejection – 35 U.S.C. § 103***

Claims 1-4, 9-16, 19-22, 27-38, and 44-48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,404,124 to Johnson (hereinafter, *Johnson*) in view of J.W. Fulton, *Selecting the Catalyst Configuration*, CHEMICAL ENGINEERING (May 12, 1986), pp. 97-101 (hereinafter, *Fulton*). Claims 6-8, 17, 18, 24-26, 39-43, and 49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Johnson* in view of *Fulton* and U.S. Patent 5,489,565 to Cheung (hereinafter, *Cheung*). Alternatively, claims 6-8, 17, 18, 24-26, 39-43, and 49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Johnson* in view of *Fulton* and *Cheung* as evidenced by WIPO Patent Application Publication 01/41922 by Frenzel (hereinafter, *Frenzel*). Claims 15, 36, and 37 are hereby canceled. Claims 2-4, 6-14, 16-18, 44, 45, and 47 depend on claim 1, claims 20-22, 24-35, 38-40, 46, and 48 depend on claim 19, and claims 42, 43, and 49 depend on claim 41. Thus, claims 1-4, 6-14, 16-22, 24-35, 38-40, and 44-48 stand or fall on the application of *Johnson* and *Fulton* to independent claims 1 and 19, and claims 41-43 and 49 stand or fall on the

application of *Johnson*, *Fulton*, and *Cheung* to independent claim 41. As noted by the United States Supreme Court in *Graham v. John Deere Co. of Kansas City*, an obviousness determination begins with a finding that **“the prior art as a whole in one form or another contains all” of the elements of the claimed invention.** See *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 22 (U.S. 1966). The Applicants respectfully submit that the combination of *Johnson* and *Fulton* or the combination of *Johnson*, *Fulton*, and *Cheung* (collectively, “the cited prior art”) fail to contain all of the elements of the claimed invention, and therefore do not make obvious the pending claims.

The cited prior art fails to render obvious the pending claims because cited prior art fails to disclose a catalyst with a selectivity for the conversion of acetylene to ethylene that is greater than 45% at a temperature of about 35°C to about 100°C. Claim 1 reads:

1. A catalyst for the selective hydrogenation of acetylene, comprising:
  - a support selected from the group consisting of alumina, titania, zirconia, zinc aluminate, zinc titanate and mixtures thereof, wherein the support has a uniformly round external surface, a surface area in the range of about 3 to about 10 square meters per gram, a pore volume of about 0.24 to about 0.64 cubic centimeters per gram and has an average pore diameter from about 600 Angstroms to about 5000 Angstroms;
  - palladium in the range of about 0.01 to 1.0 weight percent of the catalyst, wherein substantially all of the palladium is concentrated in a skin periphery of the catalyst, wherein the skin has a thickness less than about 400 microns; and
  - silver in the range of about 0.5 to 10.0 times the weight of the palladium, wherein less than 80 weight percent of the silver is present in the skin periphery,**wherein the selectivity of the catalyst for the conversion of acetylene to ethylene is greater than 45 % at a temperature of about 35°C to about 100°C.**

Claims 19 and 41 contain similar limitations. As shown above, claims 1, 19, and 41 contain the limitation that the selectivity of the catalyst for the conversion of acetylene to ethylene is greater than 45 % at a temperature of about 35°C to about 100°C. *Johnson* fails to disclose a catalyst with a selectivity for the conversion of acetylene to ethylene of greater than 45% at a temperature of about 35°C to about 100°C. Specifically, *Johnson*’s selectivity refers to the ethylene to ethane

ratio, not the selectivity for the conversion of acetylene to ethylene. Likewise, *Fulton* and *Cheung* fail to disclose a selectivity for the conversion of acetylene to ethylene of greater than 45% at a temperature range of about 35°C to about 100°C. Thus, none of the cited prior art discloses a catalyst with a selectivity for the conversion of acetylene to ethylene greater than 45% at a temperature of about 35°C to about 100°C. As such, the cited prior art fails to contain an element of claims 1, 19, and 41 and consequently, the cited prior art fails to render obvious claims 1-4, 6-14, 16-22, 24-35, and 38-49.

### ***New Claims***

New dependent claims 50-52 are not anticipated or rendered obvious by the cited prior art. New dependent claim 50 is not anticipated or rendered obvious by the prior art of record because the cited prior art fails to teach or suggest a catalyst for the selective hydrogenation of acetylene wherein the catalyst is configured to convert an inlet stream comprising about 3,500 ppm acetylene into an effluent stream comprising no more than about 20 ppm acetylene. New dependent claim 51 is not anticipated or rendered obvious by the prior art of record because the cited prior art fails to teach or suggest a method for the treatment of a gaseous mixture wherein the concentration of acetylene is no more than about 20 ppm subsequent to contacting the catalyst. New dependent claim 52 is not anticipated or rendered obvious by the prior art of record because the cited prior art fails to teach or suggest a method for the treatment of a gaseous mixture wherein the  $\Delta T$  of the selective hydrogenation is no less than about 50°F. Support for these new claims is found in paragraphs 54-62 of the application. Thus, new claims 50-52 are allowable over the cited prior art.

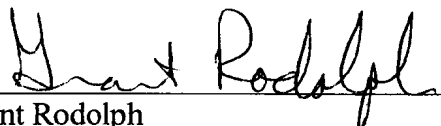
**CONCLUSION**

Consideration of the foregoing amendments and remarks, reconsideration of the application, and withdrawal of the rejections and objections is respectfully requested by Applicants. No new matter is introduced by way of the amendment. It is believed that the bases for the rejections raised in the Office Action dated March 13, 2008 have been fully addressed. If any fee is due as a result of the filing of this paper, please appropriately charge such fee to Deposit Account Number 50-1515 of Conley Rose, P.C., Texas. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

If a telephone conference would facilitate the resolution of any issue or expedite the prosecution of the application, the Examiner is invited to telephone the undersigned at the telephone number given below.

Date: 6/10/08

Respectfully submitted,  
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